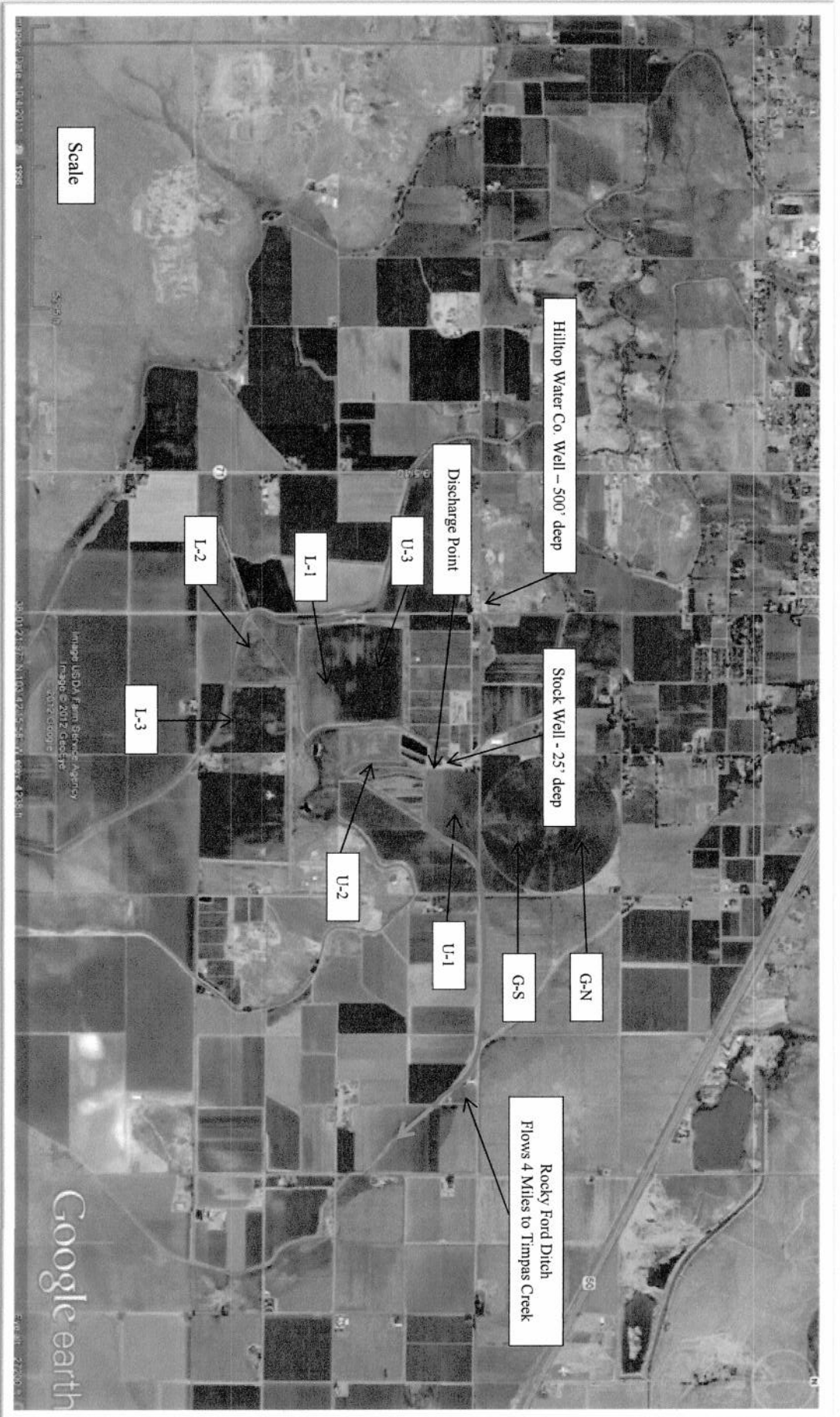


**APPENDIX A**

**NUTRIENT MANAGEMENT PLAN TERMS (1 – 6)**

**1) LAND APPLICATION FIELD MAPS**

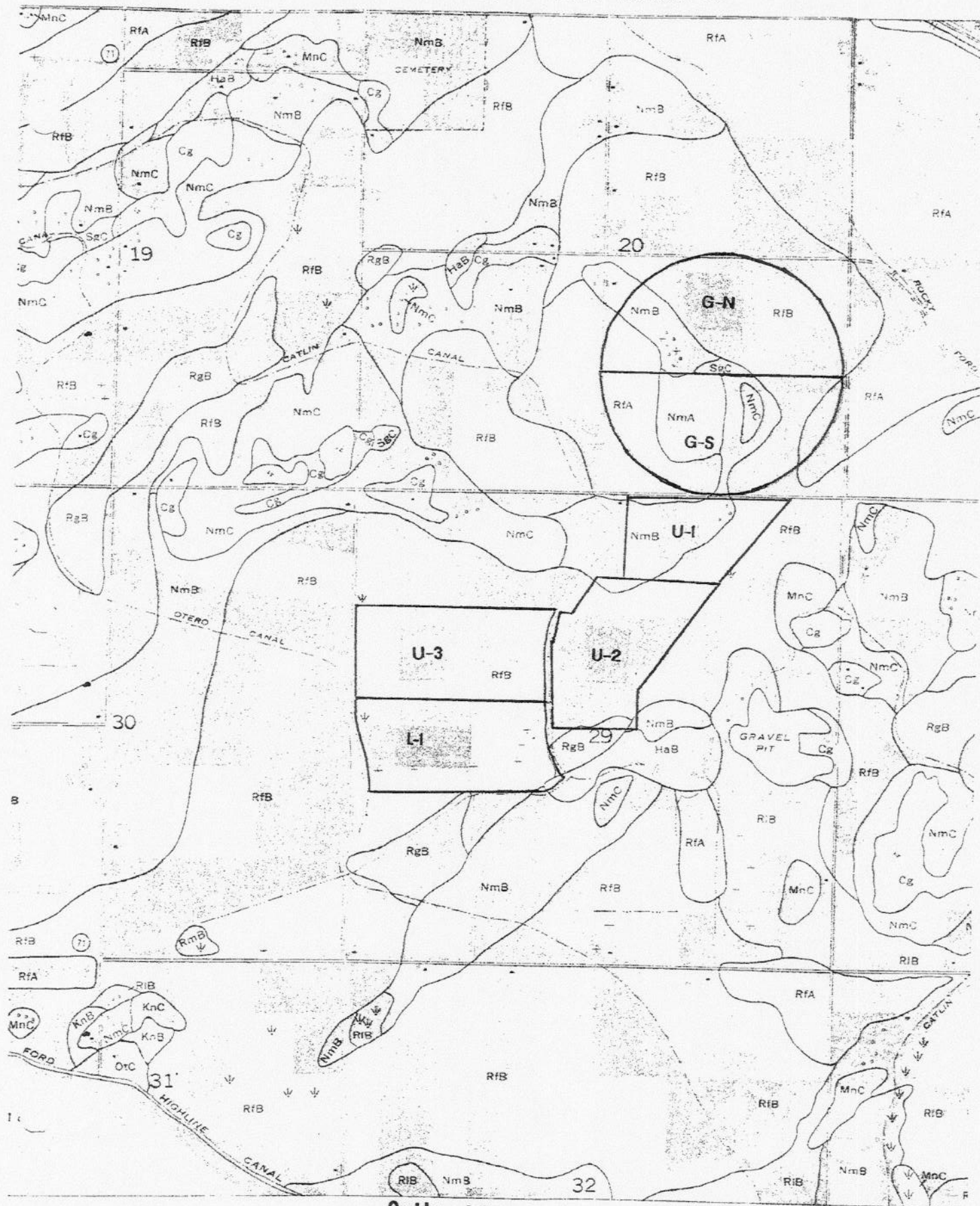
UNITED FEEDERS LAND APPLICATION AREAS, WELLS WITHIN 0.5 MILES AND DISCHARGE PATH



North

Prepared by AgriTech Consulting  
November 2012





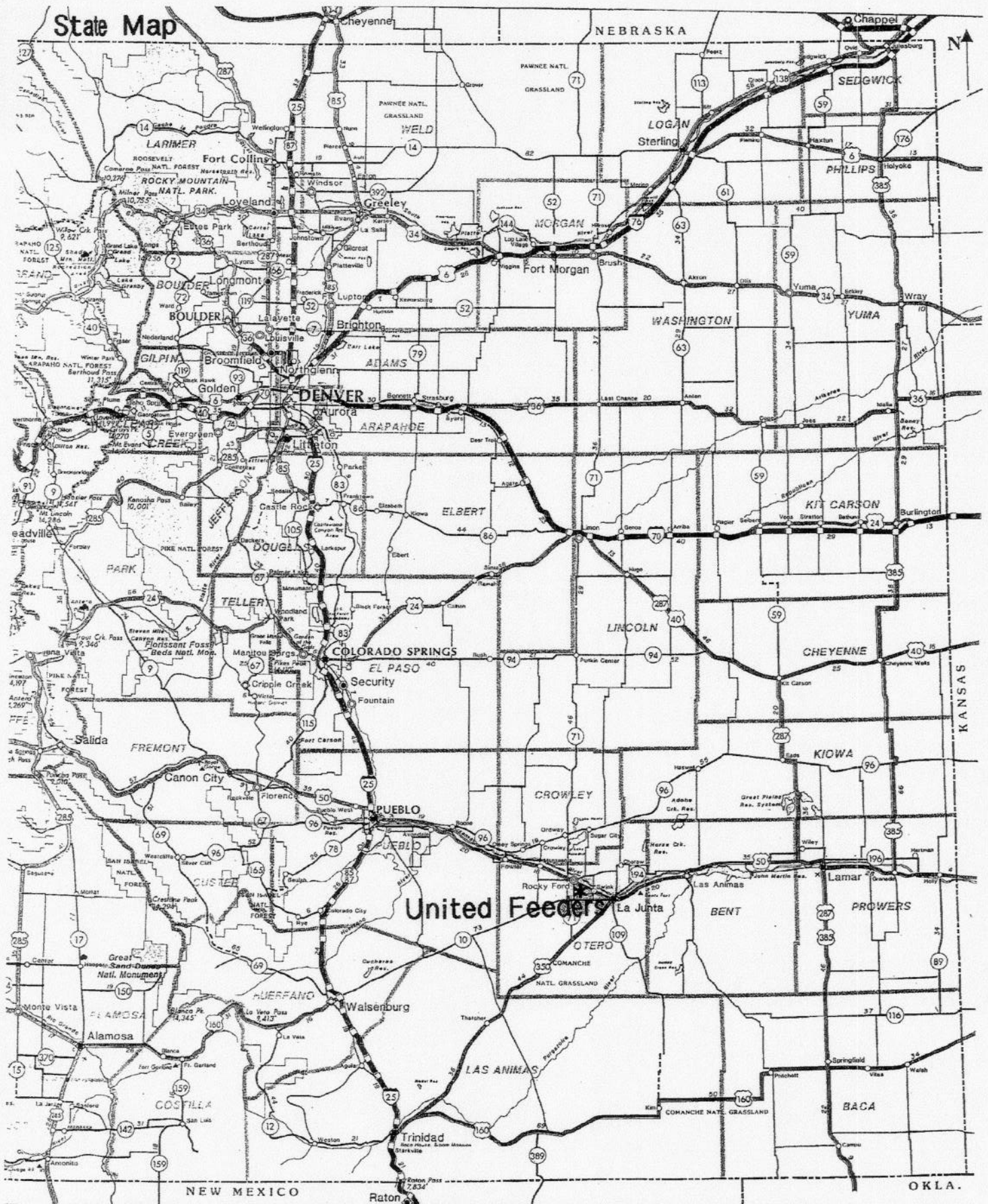
Soils Map

## Index to Soil Map Units

<u>Map Abbreviation</u>	<u>Description</u>	<u>Soil Surface Texture (USDA)</u>
NmA,B&C	Numa clay loam	Clay loam
RfA&B	Rocky Ford silty clay loam	Silty clay loam
SgC	Shingle loam	Clay loam
RgB	Rocky Ford silty clay loam, wet	Silty clay loam



# State Map



247 sq. miles  
: 2,889,964

Rank: 8th  
Rank: 28th

Town Symbols  
COUNTY SEAT  
POPULATION UNDER 2,500

5,000 to 7,500  
7,500 to 50,000  
URBAN AREAS OVER 50,000

SCALE: MILES  
0 10 20

Pierson Graphics  
ph: 623-4299  
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**APPENDIX B**

**NUTRIENT MANAGEMENT PLAN TERMS**

**2) LAND APPLICATION INFORMATION**



All land application fields are listed below.

**Table B-1 – Land Application Fields**

<sup>1</sup>Enter latitude in decimal degrees.

<sup>2</sup>Enter longitude in decimal degrees [number should be negative (eg. -104.3315)].

<sup>3</sup>Field acreages reduced by any setbacks, buffers, or otherwise unspreadable areas.





All potential crops or other uses for each land application field are listed below.

[illegible]



Nutrient needs for each potential crop or other uses for each land application field are listed below.

**Table B-3 – Crop Nutrient Needs**

[illegible]

## NMP Terms- 2) Land Application Crop Nutrient Needs

### Table B- 3, N Requirements

\*\*CSU recommendations are used, but are modified to account for the additional nitrogen that is mineralized from organic forms of nitrogen from previous applications. The percent of organic nitrogen that is mineralized from the second year is 10%, and the third year is 5%. These percentages are used for both liquid and solid nitrogen sources.

#### **Alfalfa:**

Nitrogen Rate calculated Using CSUCE publications:

“Update on Manure and Effluent Recommendations” no. 565

“Best Management Practices for Manure Utilization” Bulletin #XCM-174

- Gross N Need=  $\frac{\text{Yield (tons)}}{\text{Acre}} \times \frac{2000 \text{ lb}}{\text{Ton}} \times \frac{\% \text{ Protein}}{6.25} \times 60\% \text{ rate (N-fixing varieties)} \times \frac{100 \text{ efficiency}}{66}$
- N needed= Gross N Need – [Soil NO<sub>3</sub>-N(lb/ac) in 0-24 in.] – [%OM x 30(lb/ac)] – [Irrigation Water NO<sub>3</sub>-N (lb/ac)] – Previous Crop or Manure Application N Credits (lbs/ac)]
- $\frac{\text{N Needed}}{\text{Plant Available N}} = \text{Agronomic Rate (In/ac)}$

#### **Corn:**

Nitrogen Rate calculated Using CSUCE publications:

“Fertilizing Corn”, no. 538

- N needed= 35 + [1.2 x EY(bu/ac)] – [Soil NO<sub>3</sub>-N(lb/ac) in 0-24 in.] – [%OM x 30(lb/ac)] – [Irrigation Water NO<sub>3</sub>-N (lb/ac)] – [Previous Crop or Manure Application N Credits (lbs/ac)]
- $\frac{\text{N Needed}}{\text{Plant Available N}} = \text{Agronomic Rate (In/ac)}$

#### **Grasses:**

Nitrogen Rate calculated Using CSUCE publications:

“Fertilizing Cool Season Grasses and Grass/legume Mixtures”, no. 0.522

- N needed= 45 lbs N x [EY (tons/acre) – 1.25 (tons/acre efficiency)] – [25 lbs/acre for every 6 ppm NO<sub>3</sub>-N over 6 ppm.] – [Irrigation Water NO<sub>3</sub>-N (lb/ac)]

## Winter Wheat

Nitrogen Rate calculated Using CSUCE publications:

“Fertilizing Winter Wheat”, no. 0.544

“Update on Manure and Effluent Recommendations” no. 565

“Grain Protein Content and N Needs”, no 0.555

Gross N Need is determined using Tables 1 and 2 in CSU Fact Sheet no. 0.544

N is added according to CSU Publication if the wheat is grazed by cattle or managed to obtain protein levels greater than 12%.

- $N \text{ needed} = \text{Gross N Need} - [\text{Irrigation Water NO}_3\text{-N (lb/ac)}] - \text{Previous Crop or Manure Application N Credits (lbs/ac)}$
- $\frac{N \text{ Needed}}{\text{Plant Available N}} = \text{Agronomic Rate (In/ac)}$

## Forage Sorghum

Nitrogen Rate calculated Using NMSU publications:

“Sorghum Forage Production in New Mexico”, Guide A-332

- $N \text{ needed} = [8 \times \text{EY (bu/ac)}] - [\text{Soil NO}_3\text{-N (lb/ac) in 0-24 in.}] - [\% \text{OM} \times 30 \text{ (lb/ac)}] - [\text{Irrigation Water NO}_3\text{-N (lb/ac)}] - [\text{Previous Crop or Manure Application N Credits (lbs/ac)}]$
- $\frac{N \text{ Needed}}{\text{Plant Available N}} = \text{Agronomic Rate (In/ac)}$

## Rye/Triticale:

Nitrogen Rate calculated Using CSUCE publications:

“Best Management Practices for Manure Utilization” no. 568A

“Best Management Practices for Manure Utilization” Bulletin #XCM-174

- $\text{Gross N Need} = \frac{\text{Yield (tons)}}{\text{Acre}} \times \frac{2000 \text{ lb}}{\text{Ton}} \times 0.016 \times \frac{100}{66} \text{ efficiency}$
- $N \text{ needed} = \text{Gross N Need} - [\text{Soil NO}_3\text{-N (lb/ac) in 0-24 in.}] - [\% \text{OM} \times 30 \text{ (lb/ac)}] - [\text{Irrigation Water NO}_3\text{-N (lb/ac)}] - \text{Previous Crop or Manure Application N Credits (lbs/ac)}$
- $\frac{N \text{ Needed}}{\text{Plant Available N}} = \text{Agronomic Rate (In/ac)}$

## **Sunflower:**

Nitrogen Rate calculated Using CSU, KSU, NU, WYU, USDA-ARS-Central Great Plains Research Station, Akron, Colorado, publication:

“High Plains Sunflower Production Handbook”

- $N\ needed = [0.065 \times EY(bu/ac) \times STA] - [Soil\ NO_3-N(lb/ac)\ in\ 0-24\ in.] - [\%OM \times 30(lb/ac)] - [Irrigation\ Water\ NO_3-N\ (lb/ac)] - [Previous\ Crop\ or\ Manure\ Application\ N\ Credits\ (lbs/ac)]$
- STA= Soil Texture Adjustment (1.1 for sandy soils less than 1.0 percent OM, 1.0 for other soils)
- $\frac{N\ Needed}{Plant\ Available\ N} = \frac{Agronomic\ Rate\ (In/ac)}{Plant\ Available\ N}$

## **Grain Sorghum (Milo):**

Nitrogen Rate calculated Using NDSU publications:

“Grain Sorghum (Milo) Production Guidelines”

- $N\ needed = [1.1 \times EY(bu/ac)] - [Soil\ NO_3-N(lb/ac)\ in\ 0-24\ in.] - [\%OM \times 30(lb/ac)] - [Irrigation\ Water\ NO_3-N\ (lb/ac)] - [Previous\ Crop\ or\ Manure\ Application\ N\ Credits\ (lbs/ac)]$
- $\frac{N\ Needed}{Plant\ Available\ N} = \frac{Agronomic\ Rate\ (In/ac)}{Plant\ Available\ N}$



## **APPENDIX C**

### **NUTRIENT MANAGEMENT PLAN TERMS**

#### **3) EXPECTED CROP YIELD INFORMATION**

### 3) CROP YIELD INFORMATION REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	G-N, G-S, U-1, L-1		
Crop:	Corn		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2008	210	Bu/acre	
2009	210	Bu/acre	
2010	200	Bu/acre	drought
2011	200	Bu/acre	drought
2012	200	Bu/acre	drought

TOTAL:	1020	/	5	=	204	+10%	220.4
	Total Bushels (Sum of Column B)		# of Years (from Column A)		Average		Realistic Yield Goal

### REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	L2		
Crop:	Grass Hay		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2010	4	Tons/acre	Drought
2011	4	Tons/acre	Drought

TOTAL:	8	/	2	=	4	+10%	4.4
	Total Bushels (Sum of Column B)		# of Years (from Column A)		Average		Realistic Yield Goal

### 3) CROP YIELD INFORMATION REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	U-3		
Crop:	Alfalfa		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2008	6	Tons/acre	Drought
2009	6	Tons/acre	Drought
2010	6	Tons/acre	Drought

TOTAL:	18	/	3	=	6	+10%	6.6
	Total Bushels (Sum of Column B)		# of Years (from Column A)		Average		Realistic Yield Goal

### REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	All		
Crop:	Grain Sorghum		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2010	64	Bu/acre	Colorado Ag. Statistics, Drought

TOTAL:	64	/	1	=	64	+10%	70.4
	Total Bushels (Sum of Column B)		# of Years (from Column A)		Average		Realistic Yield Goal

### 3) CROP YIELD INFORMATION REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	All		
Crop:	Forage Sorghum		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2006-11	3	Ton/acre	USDA-FSA County Avg., Drought

TOTAL:	15	/	5	=	3	+10%	3.3
	Total Bushels (Sum of Column B)		# of Years (from Column A)		Average		Realistic Yield Goal

### REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	All		
Crop:	Sunflower		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2006-11	12.22	Cwt/acre	USDA-FSA County Avg., Drought

TOTAL:	61.10	/	5	=	12.22	+10%	13.44
	Total Bushels (Sum of Column B)		# of Years (from Column A)		Average		Realistic Yield Goal

### 3) CROP YIELD INFORMATION REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	All		
Crop:	Winter Wheat		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2010	56.5	Bu/acre	Colorado Ag Statistics, Drought

TOTAL:	56.5	/	1	=	56.5	+10%	62.2
	Total Bushels (Sum of Column B)		# of Years (from Column A)		Average		Realistic Yield Goal

### REALISTIC YIELD GOAL WORKSHEET

Historical crop yield information source: [http://www.nass.usda.gov/Data\\_and\\_Statistics/Quick\\_Stats\\_1.0/index.asp](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats_1.0/index.asp)

Facility Name:	United Feeders		
Field Identification:	All		
Crop:	Rye/Triticale		

Column A	Column B	Units	Notes: (i.e. drought, flood)
Year	Yield	(bu/ac, tons, etc.)	
2006-11	3	Tons/acre	USDA-FSA County Avg., Drought

TOTAL:	15	/	5	=	3	+10%	3.3
	Total Bushels (Sum of Column B)		# of years (From Column A)		Average		Realistic Yield Goal





**APPENDIX D**

**NUTRIENT MANAGEMENT PLAN TERMS**

**4) NUTRIENT BUDGET INFORMATION**

#### 4) NUTRIENT BUDGET INFORMATION

##### Nutrient Budget Information:

Crop:	Manure and Process Wastewater Application Rate Calculated Using:	Description of Method to be Used (calculation, look-up table, etc.):
<u>Alfalfa</u>	<input type="checkbox"/> CSUCE Published Fertilizer Suggestions <input type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"Update on Manure and Effluent Recommendations", CSUCE no. 565; "Best Management Practices for Manure Utilization", CSU Bulletin #XCM-174
<u>Corn</u>	<input checked="" type="checkbox"/> CSUCE Published Fertilizer Suggestions <input type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"Fertilizing Corn", CSUCE Fact Sheet no. 0.538, (10/09)
<u>Grain Sorghum (Milo)</u>	<input type="checkbox"/> CSUCE Published Fertilizer Suggestions <input type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"Grain Sorghum (Milo) Production Guidelines", NDSU
<u>Forage Sorghum</u>	<input type="checkbox"/> CSUCE Published Fertilizer Suggestions <input checked="" type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"Sorghum Forage Production in New Mexico", NMSU Guide A-332, (8/11)
<u>Rye/Triticale</u>	<input checked="" type="checkbox"/> CSUCE Published Fertilizer Suggestions <input type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"Best Management Practices for Manure Utilization", CSUCE no. 568A; "Best Management Practices for Manure Utilization", CSU Bulletin #XCM-174
<u>Winter Wheat</u>	<input checked="" type="checkbox"/> CSUCE Published Fertilizer Suggestions <input type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"Fertilizing Winter Wheat", CSUCE Fact Sheet no. 0.544 (5/09); "Grain Protein Content and N needs", CSUCE Fact Sheet no. 0.555, (1/08)
<u>Sunflower</u>	<input type="checkbox"/> CSUCE Published Fertilizer Suggestions <input type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"High Plains Sunflower Production Handbook", CSU, KSU, UN, WYU, USDA-ARS-Central Great Plains Research Station, Akron, CO.
<u>Wheatgrass, Bromegrass, Fescue</u>	<input checked="" type="checkbox"/> CSUCE Published Fertilizer Suggestions <input type="checkbox"/> Adjacent State CE-Published Fertilizer Suggestions <input type="checkbox"/> CNMP Method that meets USDA-NRCS standards <input type="checkbox"/> CO NRCS NMP guidelines <input type="checkbox"/> Ag Program-approved Method	"Fertilizing Cool Season Grasses and Grass/Legume Mixtures", CSUCE Fact Sheet no. 0.522, (1/11)

Realistic yield goals determined using worksheet(s) is Appendix C? ☒ Yes ☐ No

Realistic yield goals determined using methods other than worksheet(s) is Appendix C? ☐ Yes ☒ No

If yes, describe how realistic yield goals will be determined (crop insurance factors should not be added to yield goals): Colorado Ag. Statistics figures and County averages if no history is available



**APPENDIX E**

**NUTRIENT MANAGEMENT PLAN TERMS**

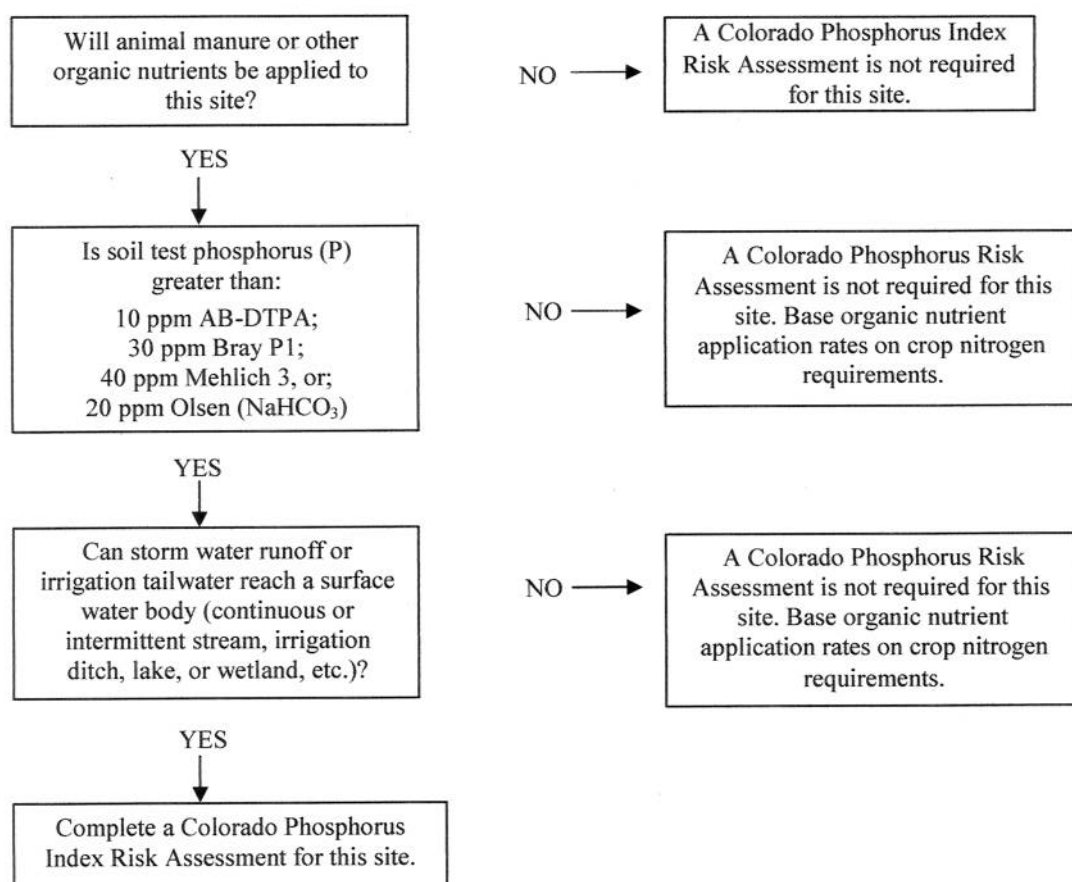
**5) COLORADO PHOSPHORUS INDEX RISK ASSESSMENT**

## 5) PHOSPHORUS AND NITROGEN TRANSPORT

Application rates for manure and process wastewater applied to land application sites minimize phosphorus and nitrogen transport from the application sites to surface waters. An initial assessment of the potential for phosphorus and nitrogen transport risk to surface water will be made prior to manure or process wastewater being applied to an application site. [Regulation No. 61.17(8)(b)(xii)(B)]

There is currently no published tool suitable for assessing nitrogen transport risk. Phosphorus and nitrogen transport risk will be assessed using the Colorado Phosphorus Index Risk Assessment.

The following flow chart will be used to determine if a phosphorus risk assessment must be completed for a land application site:



## 5) PHOSPHORUS AND NITROGEN TRANSPORT (continued)

For land application fields that require a Colorado Phosphorus Index Risk Assessment to be completed, the following applicable best management practices will be incorporated:

- (A) Phosphorus-based manure and process wastewater application rates may be made to application sites where the risk of off-site phosphorus transport is scored as high.
- (B) No application of manure or process wastewater will be made to land application sites where the risk of off-site phosphorus transport is rated as very high<sup>1</sup>.
- (C) No application of manure or process wastewater will be made to a land application site where the risk of off-site nitrogen transport to surface water is not minimized.
- (D) Where a multi-year phosphorus application was made to a land application site, no additional manure or process wastewater will be applied to the same site in subsequent years until the applied phosphorus has been removed from the site via harvest and crop removal.

<sup>1</sup> Where the initial assessment of a land application site scores very high, the facility has a three-year period within which to manage the site for the purpose of lowering the phosphorus transport risk assessment rating to high or lower. During this period, manure or process wastewater may be applied to the site at either nitrogen- or phosphorus-based rates.

After completing an initial assessment of the potential for phosphorus and/or nitrogen transport from a land application site to surface water, additional assessments will be made every five years or at the frequency described below, whichever is sooner:

Cause for Re-Assessment	Frequency
Where a crop management change has occurred	<p>For phosphorus - Assess within one year after such a change would reasonably result in an increase in the transport risk assessment score.</p> <p>For nitrogen - Assess within one year after such a change would reasonably result in the nitrogen transport to surface water not being minimized.</p>
Where a phosphorus transport risk assessment score was very high	Assess phosphorus transport risk within six months of intending to apply manure or process wastewater, except where the initial assessment is scored as very high, then there shall be a three-year period within which to manage the site for the purpose of lowering the phosphorus transport risk assessment rating to high or less. During this period, manure or process wastewater may be applied to the site at either nitrogen- or phosphorus-based rates.
Where a nitrogen transport risk assessment reveals that nitrogen transport to surface water is not minimized	Assess nitrogen transport risk within six months of intending to apply manure or process wastewater.

### **ASSOCIATED RECORDS:**

- 1) Copies of phosphorus/nitrogen transport risk assessments are maintained on-site.



Cooperator	United Feeders	Crop Year	2012	Date	7-29-12
Tract//Field No	G-N & S	Acres	122	Planner	M. Nelson
Previous Crop	Corn	Planned Crop	Corn	Yield Goal	200 Bu/Ac.

Factor/Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score
<b>1a. Runoff Class</b> (Irrigated Sites Only - See Table 1a) OR	Negligible, Very Low or Low	Medium	High	Very High	1
<b>1b. Rill and Interrill Erosion</b> (Non-Irrigated Sites Only - See Table 1b)	< 3	3-5	6-10	> 10	
<b>2. Soil Test P</b> (See Table 2)	Low	Medium	High	Very High	4
<b>3. P<sub>2</sub>O<sub>5</sub> Application Rate</b> (See Table 3a. Annually applied or rotational	< 30	30-90	91-150	> 150	1
<b>4. P Application Method</b> (See Table 4. Use highest applicable risk category for multiple P applications)	P is not applied, or P is injected or subsurface applied	Spring applied and incorporated within 2 weeks, or sprinkler applied in-season	Fall/winter applied and incorporated within 2 weeks, and fall topdress for surface or flood irrigated pasture or hayland	Surface applied w/ no incorporation, and spring topdress for surface or flood irrigated pasture or hayland	2
<b>Gross Score (Sum of Factors 1 through 4)</b>					8
<b>5. BMP, Mitigation Factor Credits</b>	Subtract one point for each of the following BMPs or Mitigation Factors applicable to this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, Soil Test Free Lime > 4%, or Residue and Tillage Management				-1
<b>Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)</b>					7

Net Score	Risk Interpretations
< 8	This field has a <b>LOW</b> potential for off-site P movement if managed at the current level. Calculate organic nutrient application rates according to crop nitrogen requirements.
8 to 11	This field has a <b>MEDIUM</b> potential for off-site P movement. Consider management changes to decrease risk and support continued long-term organic nutrient applications. Calculate organic nutrient application rates according to crop nitrogen requirements.
12 to 15	This field has a <b>HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Calculate organic nutrient application rates according to crop phosphorus requirements.
16	This field has a <b>VERY HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Do not apply organic nutrients to this field without decreasing the risk for off-site transport.

Reset Worksheet

Cooperator	United Feeders	Crop Year	2012	Date	7-29-12
Tract/Field No	U-1	Acres	30	Planner	M. Nelson
Previous Crop	Corn	Planned Crop	Corn	Yield Goal	200 Bu/Ac.

Factor/Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score
<b>1a. Runoff Class</b> (Irrigated Sites Only - See Table 1a) OR	Negligible, Very Low or Low	Medium	High	Very High	1
<b>1b. Rill and Interrill Erosion</b> (Non-Irrigated Sites Only - See Table 1b)	< 3	3-5	6-10	> 10	
<b>2. Soil Test P</b> (See Table 2)	Low	Medium	High	Very High	2
<b>3. P<sub>2</sub>O<sub>5</sub> Application Rate</b> (See Table 3a. Annually applied or rotational	< 30	30-90	91-150	> 150	1
<b>4. P Application Method</b> (See Table 4. Use highest applicable risk category for multiple P applications)	P is not applied, or P is injected or subsurface applied	Spring applied and incorporated within 2 weeks, or sprinkler applied in-season	Fall/winter applied and incorporated within 2 weeks, and fall topdress for surface or flood irrigated pasture or hayland	Surface applied w/ no incorporation, and spring topdress for surface or flood irrigated pasture or hayland	4
<b>Gross Score (Sum of Factors 1 through 4)</b>					8
<b>5. BMP, Mitigation Factor Credits</b>	Subtract one point for each of the following BMPs or Mitigation Factors applicable to this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, Soil Test Free Lime > 4%, or Residue and Tillage Management				-1
<b>Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)</b>					7

Net Score	Risk Interpretations
< 8	This field has a <b>LOW</b> potential for off-site P movement if managed at the current level. Calculate organic nutrient application rates according to crop nitrogen requirements.
8 to 11	This field has a <b>MEDIUM</b> potential for off-site P movement. Consider management changes to decrease risk and support continued long-term organic nutrient applications. Calculate organic nutrient application rates according to crop nitrogen requirements.
12 to 15	This field has a <b>HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Calculate organic nutrient application rates according to crop phosphorus requirements.
16	This field has a <b>VERY HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Do not apply organic nutrients to this field without decreasing the risk for off-site transport.

Reset Worksheet



Cooperator	United Feeders	Crop Year	2012	Date	7-29-12
Tract/Field No	U-3	Acres	37	Planner	M. Nelson
Previous Crop	Corn	Planned Crop	Corn	Yield Goal	200 Bu/Ac.

Factor/Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score
<b>1a. Runoff Class</b> (Irrigated Sites Only - See Table 1a) OR	Negligible, Very Low or Low	Medium	High	Very High	1
<b>1b. Rill and Interrill Erosion</b> (Non-Irrigated Sites Only - See Table 1b)	< 3	3-5	6-10	> 10	
<b>2. Soil Test P</b> (See Table 2)	Low	Medium	High	Very High	3
<b>3. P<sub>2</sub>O<sub>5</sub> Application Rate</b> (See Table 3a. Annually applied or rotational)	< 30	30-90	91-150	> 150	1
<b>4. P Application Method</b> (See Table 4. Use highest applicable risk category for multiple P applications)	P is not applied, or P is injected or subsurface applied	Spring applied and incorporated within 2 weeks, or sprinkler applied in-season	Fall/winter applied and incorporated within 2 weeks, and fall topdress for surface or flood irrigated pasture or hayland	Surface applied w/ no incorporation, and spring topdress for surface or flood irrigated pasture or hayland	4
<b>Gross Score (Sum of Factors 1 through 4)</b>					9
<b>5. BMP, Mitigation Factor Credits</b>	Subtract one point for each of the following BMPs or Mitigation Factors applicable to this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, Soil Test Free Lime > 4%, or Residue and Tillage Management				-1
<b>Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)</b>					8

Net Score	Risk Interpretations
< 8	This field has a <b>LOW</b> potential for off-site P movement if managed at the current level. Calculate organic nutrient application rates according to crop nitrogen requirements.
8 to 11	This field has a <b>MEDIUM</b> potential for off-site P movement. Consider management changes to decrease risk and support continued long-term organic nutrient applications. Calculate organic nutrient application rates according to crop nitrogen requirements.
12 to 15	This field has a <b>HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Calculate organic nutrient application rates according to crop phosphorus requirements.
16	This field has a <b>VERY HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Do not apply organic nutrients to this field without decreasing the risk for off-site transport.

Reset Worksheet

Cooperator	United Feeders	Crop Year	2012	Date	7-29-12
Tract/Field No	L-1	Acres	46	Planner	M. Nelson
Previous Crop	Corn	Planned Crop	Corn	Yield Goal	200 Bu/Ac.

Factor/Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score
<b>1a. Runoff Class</b> (Irrigated Sites Only - See Table 1a) OR	Negligible, Very Low or Low	Medium	High	Very High	1
<b>1b. Rill and Interrill Erosion</b> (Non-Irrigated Sites Only - See Table 1b)	< 3	3-5	6-10	> 10	
<b>2. Soil Test P</b> (See Table 2)	Low	Medium	High	Very High	3
<b>3. P<sub>2</sub>O<sub>5</sub> Application Rate</b> (See Table 3a. Annually applied or rotational	< 30	30-90	91-150	> 150	1
<b>4. P Application Method</b> (See Table 4. Use highest applicable risk category for multiple P applications)	P is not applied, or P is injected or subsurface applied	Spring applied and incorporated within 2 weeks, or sprinkler applied in-season	Fall/winter applied and incorporated within 2 weeks, and fall topdress for surface or flood irrigated pasture or hayland	Surface applied w/ no incorporation, and spring topdress for surface or flood irrigated pasture or hayland	4
<b>Gross Score (Sum of Factors 1 through 4)</b>					9
<b>5. BMP, Mitigation Factor Credits</b>	Subtract one point for each of the following BMPs or Mitigation Factors applicable to this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, Soil Test Free Lime > 4%, or Residue and Tillage Management				-1
<b>Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)</b>					8

Net Score	Risk Interpretations
< 8	This field has a <b>LOW</b> potential for off-site P movement if managed at the current level. Calculate organic nutrient application rates according to crop nitrogen requirements.
8 to 11	This field has a <b>MEDIUM</b> potential for off-site P movement. Consider management changes to decrease risk and support continued long-term organic nutrient applications. Calculate organic nutrient application rates according to crop nitrogen requirements.
12 to 15	This field has a <b>HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Calculate organic nutrient application rates according to crop phosphorus requirements.
16	This field has a <b>VERY HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Do not apply organic nutrients to this field without decreasing the risk for off-site transport.

Reset Worksheet



Cooperator	United Feeders	Crop Year	2012	Date	7-29-12
Tract/Field No	L-3	Acres	35	Planner	M. Nelson
Previous Crop	Corn	Planned Crop	Fallow	Yield Goal	0

Factor/Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score
<b>1a. Runoff Class</b> (Irrigated Sites Only - See Table 1a) OR	Negligible, Very Low or Low	Medium	High	Very High	1
<b>1b. Rill and Interrill Erosion</b> (Non-Irrigated Sites Only - See Table 1b)	< 3	3-5	6-10	> 10	
<b>2. Soil Test P</b> (See Table 2)	Low	Medium	High	Very High	3
<b>3. P<sub>2</sub>O<sub>5</sub> Application Rate</b> (See Table 3a. Annually applied or rotational	< 30	30-90	91-150	> 150	1
<b>4. P Application Method</b> (See Table 4. Use highest applicable risk category for multiple P applications)	P is not applied, or P is injected or subsurface applied	Spring applied and incorporated within 2 weeks, or sprinkler applied in-season	Fall/winter applied and incorporated within 2 weeks, and fall topdress for surface or flood irrigated pasture or hayland	Surface applied w/ no incorporation, and spring topdress for surface or flood irrigated pasture or hayland	4
<b>Gross Score (Sum of Factors 1 through 4)</b>					9
<b>5. BMP, Mitigation Factor Credits</b>	Subtract one point for each of the following BMPs or Mitigation Factors applicable to this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, Soil Test Free Lime > 4%, or Residue and Tillage Management				-1
<b>Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)</b>					8

Net Score	Risk Interpretations
< 8	This field has a <b>LOW</b> potential for off-site P movement if managed at the current level. Calculate organic nutrient application rates according to crop nitrogen requirements.
8 to 11	This field has a <b>MEDIUM</b> potential for off-site P movement. Consider management changes to decrease risk and support continued long-term organic nutrient applications. Calculate organic nutrient application rates according to crop nitrogen requirements.
12 to 15	This field has a <b>HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Calculate organic nutrient application rates according to crop phosphorus requirements.
16	This field has a <b>VERY HIGH</b> potential for off-site P movement. Implement management changes to decrease risk. Do not apply organic nutrients to this field without decreasing the risk for off-site transport.

Reset Worksheet

**APPENDIX F**

**NUTRIENT MANAGEMENT PLAN TERMS**

**6) FIELD NUTRIENT BALANCE CALCULATIONS**





**6) FIELD NUTRIENT BALANCE CALCULATIONS SHEET**  
(Conduct calculations for each crop, for each field)

Facility Name: United Feeders, Inc.

Permit Number: 931038

Land Application Site Name: G-N & G-S (also known as G1

Date: 7-29-12

**Table F-1**

Crop sequence/rotation and year (circle current crop)						Realistic Yield Goal (of current year)
Year	2012	2013	2014	2015	2016	
Crop	corn	corn	corn	corn	corn	220 bu/ac

**Table F-2**

Current soil test levels (ppm or lb/ac)							
Soil Test Date	N* (as NO <sub>3</sub> -N)	P*	Phosphorus Test Extraction Used (AB-DTPA, Bray, Mehlich, NaHCO <sub>3</sub> )	K	pH	CEC	O.M.%
2/29/12	97 lbs	100 ppm	NaHCO <sub>3</sub>	459	8.0	.84	2.1

\*Must be tested

**Table F-3**

Recommended nutrients/amendments to meet realistic yield goal (see Appendix B, Table B-3)				
N <sup>1</sup>	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Lime	Other:
299 lbs	0	0	---	---

<sup>1</sup> N number is based on removal, rather than on soil test NO<sub>3</sub>-N carryover from the previous crop. Use this value to complete line 10 on Table F-4 below.

**Table F-4**

Nutrient Sources		N
		<sup>2</sup> lbs/ac
1. Nitrogen credits from previous legume crop		0
2. Nitrogen credit from irrigation water		Na
3. Other (e.g., soil organic matter mineralization, atmospheric deposition/evaporation)		63
4. Soil nitrogen credit		97
5. Total credits		160
		N
6. Credits (from row 5 above)		160
7. Plant available nitrogen (PAN) content of manure, litter, and process wastewater		0 – no app in 2012
8. Fertilizer	Starter	0
	Other	139
9. Subtotal (sum of line 6, 7, and 8)		299
10. Nitrogen recommended (from Table F-3)		299
11. Nitrogen Status (subtract line 10 from line 9)		0
If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendations.		
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.		

<sup>2</sup>Use the same units for each line in Table F-4. Include documentation of unit conversion factors used, if any.

Nutrient Management Specifications				
Amount to be applied (lb/ac)	N:139	P <sub>2</sub> O <sub>5</sub> :0	K <sub>2</sub> O:0	Other:0

Predicted method, form, and timing of application: Split fertigation applications and/or sidedress in June

## 6) FIELD NUTRIENT BALANCE CALCULATIONS SHEET

(Conduct calculations for each crop, for each field)

Facility Name: United Feeders, Inc.

Permit Number: 931038

Land Application Site Name: U1

Date: 7-29-12

**Table F-1**

Crop sequence/rotation and year (circle current crop)						Realistic Yield Goal (of current year)
Year	2012	2013	2014	2015	2016	
Crop	corn	corn	corn	corn	corn	220 Bu

**Table F-2**

Current soil test levels (ppm or lb/ac)							
Soil Test Date	N <sup>a</sup> (as NO <sub>3</sub> -N)	P <sup>a</sup>	Phosphorus Test Extraction Used (AB-DTPA, Bray, Mehlich, NaHCO <sub>3</sub> )	K	pH	CEC	O.M. %
2-27-12	111 lbs	35 ppm	NaHCO <sub>3</sub>	236 ppm	8.0	1.94	1.7

<sup>a</sup>Must be tested

**Table F-3**

Recommended nutrients/amendments to meet realistic yield goal (see Appendix B, Table B-3)				
N <sup>1</sup>	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Lime	Other:
299 lbs	20 lbs	0	---	---

<sup>1</sup> N number is based on removal, rather than on soil test NO<sub>3</sub>-N carryover from the previous crop. Use this value to complete line 10 on Table F-4 below.

**Table F-4**

Nutrient Sources		N
		<sup>2</sup> lbs/ac
1. Nitrogen credits from previous legume crop		0
2. Nitrogen credit from irrigation water		Na
3. Other (e.g., soil organic matter mineralization, atmospheric deposition/evaporation)		51
4. Soil nitrogen credit		111
5. <b>Total credits</b>		162
		<b>N</b>
6. Credits (from row 5 above)		162
7. Plant available nitrogen (PAN) content of manure, litter, and process wastewater		0- no app in 2012
8. Fertilizer	Starter	0
	Other	137
9. <b>Subtotal (sum of line 6, 7, and 8)</b>		299
10. <b>Nitrogen recommended (from Table F-3)</b>		299
11. <b>Nitrogen Status (subtract line 10 from line 9)</b>		0
If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendations.		
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.		

<sup>2</sup>Use the same units for each line in Table F-4. Include documentation of unit conversion factors used, if any.

Nutrient Management Specifications				
Amount to be applied (lb/ac)	N:137	P <sub>2</sub> O <sub>5</sub> :20	K <sub>2</sub> O:0	Other:0

Predicted method, form, and timing of application: Sidedress crop in early June

## 6) FIELD NUTRIENT BALANCE CALCULATIONS SHEET

(Conduct calculations for each crop, for each field)

Facility Name: United Feeders, Inc.

Permit Number: 931038

Land Application Site Name: U-3

Date: 7-29-12

**Table F-1**

Crop sequence/rotation and year (circle current crop)						Realistic Yield Goal (of current year)
Year	2012	2013	2014	2015	2016	
Crop	New alfalfa	alfalfa	alfalfa	alfalfa	alfalfa	4 tons/acre

**Table F-2**

Current soil test levels (ppm or lb/ac)							
Soil Test Date	N* (as NO <sub>3</sub> -N)	P*	Phosphorus Test Extraction Used (AB-DTPA, Bray, Mehlich, NaHCO <sub>3</sub> )	K	pH	CEC	O.M.%
2/27/12	149 lbs.	59 ppm	NaHCO <sub>3</sub>	301 ppm	7.9	2.04	2.0

\*Must be tested

**Table F-3**

Recommended nutrients/amendments to meet realistic yield goal (see Appendix B, Table B-3)				
N <sup>1</sup>	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Lime	Other:
210 lbs/acre	0	0	---	---

<sup>1</sup> N number is based on removal, rather than on soil test NO<sub>3</sub>-N carryover from the previous crop. Use this value to complete line 10 on Table F-4 below.

**Table F-4**

Nutrient Sources		N
		<sup>2</sup> lbs/ac
1. Nitrogen credits from previous legume crop		90
2. Nitrogen credit from irrigation water		na
3. Other (e.g., soil organic matter mineralization, atmospheric deposition/evaporation)		60
4. Soil nitrogen credit		149
5. <b>Total credits</b>		299
		<b>N</b>
6. Credits (from row 5 above)		299
7. Plant available nitrogen (PAN) content of manure, litter, and process wastewater		0- no app in 2012
8. Fertilizer	Starter	0
	Other	0
9. <b>Subtotal (sum of line 6, 7, and 8)</b>		299
10. <b>Nitrogen recommended (from Table F-3)</b>		210
11. <b>Nitrogen Status (subtract line 10 from line 9)</b>		89
If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendations.		
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.		

<sup>2</sup>Use the same units for each line in Table F-4. Include documentation of unit conversion factors used, if any.

Nutrient Management Specifications				
Amount to be applied (lb/ac)	N:0	P <sub>2</sub> O <sub>5</sub> :0	K <sub>2</sub> O:0	Other:0

Predicted method, form, and timing of application: None



## 6) FIELD NUTRIENT BALANCE CALCULATIONS SHEET

(Conduct calculations for each crop, for each field)

Facility Name: United Feeders, Inc.

Permit Number: 931038

Land Application Site Name: L-1

Date: 7-29-12

**Table F-1**

Crop sequence/rotation and year (circle current crop)						Realistic Yield Goal (of current year)
Year	2012	2013	2014	2015	2016	
Crop	corn	corn	corn	corn	corn	220 bu

**Table F-2**

Current soil test levels (ppm or lb/ac)							
Soil Test Date	N* (as NO <sub>3</sub> -N)	P*	Phosphorus Test Extraction Used (AB-DTPA, Bray, Mehlich, NaHCO <sub>3</sub> )	K	pH	CEC	O.M.%
2-29-12	69 lbs	44 ppm	NaHCO <sub>3</sub>	384 ppm	7.8	3.84	1.9

\*Must be tested

**Table F-3**

Recommended nutrients/amendments to meet realistic yield goal (see Appendix B, Table B-3)				
N <sup>1</sup>	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Lime	Other:
299	0	0	0	0

<sup>1</sup> N number is based on removal, rather than on soil test NO<sub>3</sub>-N carryover from the previous crop. Use this value to complete line 10 on Table F-4 below.

**Table F-4**

Nutrient Sources		N
		<sup>2</sup> lbs/ac
1. Nitrogen credits from previous legume crop		0
2. Nitrogen credit from irrigation water		na
3. Other (e.g., soil organic matter mineralization, atmospheric deposition/evaporation)		57
4. Soil nitrogen credit		69
5. <b>Total credits</b>		126
		N
6. Credits (from row 5 above)		126
7. Plant available nitrogen (PAN) content of manure, litter, and process wastewater		0- no app in 2012
8. Fertilizer	Starter	0
	Other	173
9. <b>Subtotal (sum of line 6, 7, and 8)</b>		299
10. <b>Nitrogen recommended (from Table F-3)</b>		299
11. <b>Nitrogen Status (subtract line 10 from line 9)</b>		0
If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendations.		
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.		

<sup>2</sup>Use the same units for each line in Table F-4. Include documentation of unit conversion factors used, if any.

Nutrient Management Specifications				
Amount to be applied (lb/ac)	N:173	P <sub>2</sub> O <sub>5</sub> :0	K <sub>2</sub> O:0	Other:0

Predicted method, form, and timing of application: Sidedress crop in June

## 6) FIELD NUTRIENT BALANCE CALCULATIONS SHEET

(Conduct calculations for each crop, for each field)

Facility Name: United Feeders, Inc.

Permit Number: 931038

Land Application Site Name: L-3

Date: 7-29-12

**Table F-1**

Crop sequence/rotation and year (circle current crop)						Realistic Yield Goal (of current year)
Year	2012	2013	2014	2015	2016	
Crop	fallow	corn	corn	fallow	corn	220 Bu/ac

**Table F-2**

Current soil test levels (ppm or lb/ac)							
Soil Test Date	N* (as NO <sub>3</sub> -N)	P*	Phosphorus Test Extraction Used (AB-DTPA, Bray, Mehlich, NaHCO <sub>3</sub> )	K	pH	CEC	O.M.%
2-22-12	135 lbs	49 ppm	NaHCO <sub>3</sub>	373 ppm	7.9	2.68	2.4

\*Must be tested

**Table F-3**

Recommended nutrients/amendments to meet realistic yield goal (see Appendix B, Table B-3)				
N <sup>1</sup>	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Lime	Other:
0	0	0	0	0

<sup>1</sup> N number is based on removal, rather than on soil test NO<sub>3</sub>-N carryover from the previous crop. Use this value to complete line 10 on Table F-4 below.

**Table F-4**

Nutrient Sources		N
		<sup>2</sup> lbs/ac
1. Nitrogen credits from previous legume crop		0
2. Nitrogen credit from irrigation water		Na
3. Other (e.g., soil organic matter mineralization, atmospheric deposition/evaporation)		72
4. Soil nitrogen credit		135
5. <b>Total credits</b>		207
		N
6. Credits (from row 5 above)		207
7. Plant available nitrogen (PAN) content of manure, litter, and process wastewater		0- no app in 2012
8. Fertilizer	Starter	0
	Other	0
9. <b>Subtotal (sum of line 6, 7, and 8)</b>		207
10. <b>Nitrogen recommended (from Table F-3)</b>		0
11. <b>Nitrogen Status (subtract line 10 from line 9)</b>		207
If line 11 is a negative number, this is the amount of additional nutrients needed to meet the crop recommendations.		
If line 11 is a positive number, this is the amount by which the available nutrients exceed the crop requirements.		

<sup>2</sup>Use the same units for each line in Table F-4. Include documentation of unit conversion factors used, if any.

Nutrient Management Specifications				
Amount to be applied (lb/ac)	N:0	P <sub>2</sub> O <sub>5</sub> :0	K <sub>2</sub> O:0	Other:0

Predicted method, form, and timing of application: No application in 2012- Fallow field